

**Alaska Department of Fish and Game  
Division of Wildlife Conservation  
September 2005**

# **Landscape-Scale Wolverine Distribution and Habitat Use in Interior Alaska: Identification of Key Habitat Parameters**

**Craig Gardner**

**Federal Aid in Wildlife Restoration  
Annual Research Performance Report  
1 July 2004–30 June 2005  
Grant W-33-3, Study 7.21**

This is a progress report on continuing research. Information may be refined at a later date.

If using information from this report, please credit the author and the Alaska Department of Fish and Game.

**FEDERAL AID  
ANNUAL RESEARCH PERFORMANCE REPORT**

ALASKA DEPARTMENT OF FISH AND GAME  
DIVISION OF WILDLIFE CONSERVATION  
PO Box 25526  
Juneau, AK 99802-5526

**PROJECT TITLE:** Coarse-scale wolverine distribution and habitat use in Interior Alaska:  
Identification of key habitat parameters

**PRINCIPAL INVESTIGATOR:** Craig Gardner

**COOPERATORS:** Jim Lawler, National Park Service

**FEDERAL AID GRANT PROGRAM:** Wildlife Restoration

**GRANT AND SEGMENT NR:** W-33-3

**PROJECT NR:** 7.21

**WORK LOCATION:** Interior Alaska bordered on the west by McGrath, on the north by the Brooks Range, on the east by the Yukon/Alaska border and on the south by the Alaska Range and Wrangell Mountains.

**STATE:** Alaska

**PERIOD:** 1 July 2004–30 June 2005

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**I. PROGRESS ON PROJECT OBJECTIVES SINCE PROJECT INCEPTION**

**OBJECTIVE 1:** To determine on a landscape scale wolverine distribution and habitat parameters in Interior Alaska and develop a habitat model to help identify which habitat variables are most correlated with wolverine presence.

We aerially surveyed 504 km of transect lines within 15 hexagon sample units. We observed wolverine tracks in all 15 of the sampled hexagons. Combining data collected during 2004 and 2005, we observed wolverine tracks in 78 (64%) of the 122 sampled hexagon units. We have 134 hexagons remaining to complete the survey. We have contacted Dr. Devin Johnson at the University of Alaska Fairbanks (UAF) to help analyze the data. Results will be used to develop a habitat model that correlates habitat variables and wolverine presence.

**II. SUMMARY OF WORK COMPLETED ON JOBS IDENTIFIED IN ANNUAL PLAN  
THIS PERIOD**

Edited Sep-05

Please note: This is a progress report and the information contained within may be further analyzed and refined.

JOB 1: Conduct a literature review on wolverine ecology and research methodology.

We conducted a literature review of wolverine ecology, including references on habitat use, movements, food habits, reproductive behavior, stable isotope methodology, statistical sampling, and modeling techniques

JOB 2: Prepare baseline GIS maps.

We used ArcView GIS to measure and map landscape terrain roughness and elevation changes within the study area. These data will be used in conjunction with other habitat variables to model wolverine distribution.

JOB 3: Conduct aerial track surveys during January and February, prior to wolverine denning season.

During February 2005, we aerielly surveyed 15 sample units. In each selected hexagon, a transect approximately 32 km long was searched by a pilot/observer team experienced in recognizing wildlife tracks. The presence of wolverine and wolf tracks, the general abundance of ungulates, furbearers, hares, and gallinaceous birds, and the type of human use was determined by counting tracks or actual sightings. Snow cover and freshness was described. Primary vegetation types were noted, but most of the vegetation data has come from Landsat TM imagery (30 m pixel) produced by Ducks Unlimited. Terrain roughness and elevation categories were determined using ArcView GIS programs. ADF&G aircraft were used to fly the survey.

JOB 4: Construct a multiple logistic regression model to determine which landscape habitat variables correlate best with wolverine presence. This will be followed by forward stepwise Generalized Additive Modeling to determine the best fit to the data.

We were not able to complete this task due to the departure of ADF&G's biometrician. We have contracted with Dr. Devin Johnson, UAF, to assist with this task until an ADF&G Region III biometrician is hired. We plan to have this task complete by September 2006. Preliminary results indicate that various factors may explain wolverine presence or absence, but these factors may not be consistent across the Interior.

JOB 5: Write annual progress reports, final report, and manuscripts.

This was the second year of the project. This report summarizes results to date.

**III. ADDITIONAL FEDERAL AID-FUNDED WORK NOT DESCRIBED ABOVE THAT WAS ACCOMPLISHED ON THIS PROJECT DURING THIS SEGMENT PERIOD**

No additional work was completed

**IV. PUBLICATIONS**

None

**V. RECOMMENDATIONS FOR THIS PROJECT**

None

## VI. APPENDIX

### VII. PROJECT COSTS FOR THIS SEGMENT PERIOD

**Stewardship Investment items purchased:** *list any equipment or other items purchased for which the cost of the individual item was \$5,000 or more (include cost)*  
None

FEDERAL AID SHARE \$6,040    STATE SHARE \$2,013    TOTAL \$8,053

### VIII. PREPARED BY:

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### SUBMITTED BY:

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